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ABSTRACT

A rationale is offered for the use of communication satellites, which would provide a means for transcending the difficulties of distance, for the formation of academic constellations to conduct courses, coordinate cooperative research activities, and conduct academic business. One means of instituting satellite usage would be the formation of consortia of universities and colleges to share their combined capabilities and to draw on each other's resources. Obstacles to the formation of such a group are discussed, as well as ethical considerations involved when using telecommunication technology to reach remote populations. (RAO)

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EDUCATIONAL CONSIDERATIONS

by

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EDUCATIONAL CONSIDERATIONS

During the 1950's, Frank Scott, whom many of you will know both as a legal scholar and a poet, worked on a translation into English of Anne Hébert's poem Le Tombeau des rois. The exchange of letters between Scott and Hébert has been published (Dialogue sur la traduction, Montreal, Editions HMH, 1970). It makes fascinating reading. Anne Hébert's comments record the new impact her poem makes on her as she reads it in translation and she suggests to Frank Scott that they go more deeply into the experience of translation "et tenter de la saisir dans ce qu'elle a à la fois de précis et de mystérieux." The movement from one language to another uncovers endless subtleties and provokes in the reader reflections that often go beyond those of the two poets. For example, Scott translates "en guise de prunelles" as "in place of eyes" and Anne Hébert asks: "Existe-t-il en anglais un mot pour traduire prunelles? Ce mot en français comporte aussi le sens de ce qui est très précieux et fragile." And Scott responds: "Prunelles literally means pupils ... We do not use pupils in the same sense as you use prunelles, meaning something very precious." Frank Scott is right, of course, we do not use pupils in that way. But then one asks, how does one translate into English the French expression which most directly conveys the notion of preciousness, that is "elle est la prunelle de mes yeux"? The answer, of course, is "she is the apple of my eye". Now if you look up "apple" in the Oxford English Dictionary you find that when it is used in that particular

expression, it means pupil. Why would both French and English use the word for a fruit to denote the centre of the eye? and why would the English emphasize the pupil's roundness by choosing "apple" and the French emphasize its blue-black colour by choosing "prunelle"? and why did the English stop using the term "apple" for that part of the eye, except in one very special expression, and substitute pupil which has another series of connotations?

But perhaps I should stop, for another question may be going through your minds: what has all this to do with the Hermes Satellite and this symposium? Let me answer as briefly as I can.

First, the symposium must, I suggest, look at communication through Hermes as Anne Hébert proposed one must look at translation: trying to grasp it "dans ce qu'elle a à la fois de précis et mystérieux". Second, we must be aware throughout our deliberations that communication produces an endless and unpredictable chain of interactions amongst words, images and symbols. I am speaking to you face to face, in the same setting, in a language which many of you share with me as a mother tongue. Yet what I say will evoke a different response in each of you. How is my ability to communicate affected when you and I are miles apart, in totally different settings, and come, perhaps, from very different cultures? Beaming communications by satellite may not, of course, add radical new elements to the problems of communication by telephone, radio and television. From the educational point of view (my point of departure), perhaps the essential problems are simply those of learning at a distance. But it would be dangerous to assume

that the elements of novelty brought by Hermes are trivial. Satellite communication permits simultaneous interaction of a rich, complex kind over very long distances, reaching into hitherto very remote and inaccessible communities. For better or worse, we can make a kind of contact we couldn't make before, and perhaps a rather special ethical problem and a rather special political possibility arise. I will return to this problem and to this possibility in a moment. Let me first of all review where we are in "learning at a distance".

The use of telecommunications media to allow students to attend courses where they are, close to their home or work, rather than coming together at some central location is not new. While such remote teaching systems are not commonplace, many examples may be found on this continent. For example, Chicago's TV College has been in operation for some twenty years. This last year, 2,500 students attended 148 advanced level undergraduate and graduate credit courses on Stanford University's instructional television network, and thousands distributed throughout the whole State of Wisconsin attended non-credit courses on the University of Wisconsin's telephone-based instructional network. Here in Canada: the Ryerson Polytechnical Institute in Toronto offers courses by FM radio, and the telephone finds many applications in the geographically dispersed Université du Québec.

The use of communications technology in education is often associated exclusively with pre-packaged course materials such as the video productions of Britain's Open University or the University of Mid-America, or the audio

cassettes used by the University of Waterloo. Such programmes can be viewed by students either on closed-circuit systems, or distributed publicly through broadcasting systems. For example, the programmes of the Open University form part of the regular programming schedule of the British Broadcasting Corporation. In these cases, telecommunications technology provides a distribution mechanism, but so does the mail service.

A quite different approach is practised by Stanford and by Wisconsin. The students are more actively involved being, as it were, in a physically dispersed classroom whose components are held together by the communications technology. In Wisconsin, the teacher is not physically present with any of his students. The teacher and the students communicate with each other through a specially designed telephone network which allows any participant to speak to the whole group. A great deal of care is taken to help the instructor to develop techniques for encouraging participation by the students, and the sessions are run more as seminars than as lectures. At Stanford, on the other hand, the lectures are presented to a regular class on campus, but in special studio-classrooms which allow remote students to attend via television. A telephone arrangement makes it possible for the remote students to ask questions of the instructor during the course of the class. These discussions are also heard by the whole group. Clearly, this is a very different approach than pre-packaged courses. These are live classroom situations in which telecommunications are used to overcome distance.

Satellite communications have applications in both of these modes of educational communications. The use of satellites for the distribution of pre-packaged instructional programs is by far the less interesting of the two. However, studies have indicated that satellite distribution can have economic and operational advantages over the physical distribution of videotapes. The second mode in which the teaching session is live and which provides for participation by the students has many more intriguing implications. In the remainder of my remarks I shall concentrate on this aspect only.

Both Canada and the United States are physically large countries with some regions of population concentration, and far larger areas of relatively light population density. In the case of Canada, there are huge regions with few inhabitants, and the majority of the population is strung out in a narrow ribbon along our southern boundary. The distribution of universities and other post-secondary institutions tends to follow the same pattern. As a result (although there are some exceptions) access to the larger, more complete and diversified, more active, and generally better educational resources is easier for the inhabitants of the more populated regions. In more remote areas, the universities tend to be smaller, further away from prospective students, and less able to cover adequately the myriad categories of intellectual and academic activity. Each professor is required to span a broader field at inevitable cost to his depth of knowledge, or large and significant areas are simply absent from the spectrum of departmental offerings. Recruitment of faculty also becomes increasingly difficult as one goes further from the accepted pinnacles of academe.

This is not to depreciate the fine work done by the many hundreds of small and medium-sized universities and colleges on this continent but simply to point out that such institutions have difficulty presenting academic programmes of a breadth and depth comparable to those of the larger, more central institutions. Moreover, not even the largest and wealthiest institutions have a monopoly of talent, expertise, and quality.

This said, it would seem to follow there would be much to be gained through the formation of consortia of universities and colleges to share their combined capabilities and to draw on the resources of each other. Communications satellites provide a means for transcending the difficulties of distance to form academic constellations of far greater potency than the scattered bits and pieces. It is certainly possible to conduct courses through these communication channels: it is also possible to coordinate cooperative research activities and to conduct academic business. The papers to be presented later will demonstrate this.

Are we likely to see such consortia-to-conquer-distance coming together? At present, trends are not in that direction. Rather, the movement in human habitation all over the world is for people to cluster ever closer together in the huge cities. Much of the force behind this migration is the search for better social services - in health, education, and so on. It is all too evident that the result is not necessarily a better life for all. Rather, social and economic problems multiply. This Symposium on the Hermes satellite program will illustrate how satellite communications can overcome the need for physical proximity; how health and educational needs and the need

for social communication can be served. It will show how people in communities a continent apart can be brought together to come to know one another better. Just as the telegraph tied a continent together in another age, we will see how communications satellites offer a broad vista for people-to-people communications in a world rather weary of mass communications.

Showing how things can be done does not necessarily mean that they will be done, and although it can be demonstrated that there are benefits to be found in joining together more closely the scattered communities of this country, these communities may still prefer to stay apart and let the big cities form to fill the needs they are not meeting.

The likelihood of satellite communications being used to preserve and enrich small communities would be increased if it could be shown that costs would thereby be lowered. Perhaps savings are possible in health services' delivery. I doubt if they are in higher education. Education at a lower cost is probably not to be found from satellite communications; rather a higher quality of education at somewhat greater cost is offered.

Unfortunately, our timing is awry. Had this technology been available ten years ago when, in Canada particularly, every university and college was hard pressed to find sufficient staff, the appeal of the cooperative enterprise suggested by satellite communications would have been obvious. With the pressure to expand from growing student numbers, and the relatively liberal funding of the times, a significant role for an educational satellite might quickly have been found. Now circumstances are drastically altered

with the future suggesting declining enrolments, oversupply of professors in some areas, and ever-tightening budgets.

Even if the universities were still in a buoyant, expansionary phase, however, there would be obstacles to the formation of the consortia I have envisioned. One such obstacle would be skepticism about the claim that long-distance linkages would provide high quality education. When learning at a distance is the alternative to not learning at all, its supporters are numerous. These supporters dwindle when an on-campus situation, even if it is not a particularly rich one, is available. It is still only a minority which claims that with training and experience, a teacher can create a situation for the remote student which will produce just as effective communications between teacher and students, and among students, as can be achieved on a common campus. An even smaller minority claims that the remote situation can be better.

Another obstacle to higher education linkages is institutional rigidity. Universities do not have a good track record on cooperation. On the contrary, they often act in highly competitive and parochial ways. Getting universities to share even such a basic resource as a single course can be extraordinarily difficult, as those who have worked on the sharing of packaged, self-instruction materials well know. The process of agreeing on objectives, on level of difficulty, and on content is long and painful and a great deal more must be learned about simplifying the reaching of consensus before more complex inter-university cooperation becomes widespread. Ironically, the immense distances which can be spanned by a communications satellite may help to minimize the problems of reaching inter-university agreement. Quite possibly

two universities separated by a thousand miles and within different political jurisdictions will find it easier to cooperate than universities that sit side by side in the same city.

These two obstacles suggest that satellite communication in higher education may for some time continue to be experimental and that a move from the research mode to an operational mode may take place only in rather particular settings.

One of these settings is the Canadian north. Only satellite communications could make possible a "university of the north" in which students were scattered across the whole region and in which courses could originate from a number of different northern locations. Yet just because this possibility is so challenging, it is wise at the outset to raise the ethical problem I mentioned early in this paper.

Professor Herbert Kelman of Harvard University has treated the problem with great clarity. "Ethical problems arise", he writes, "because of the fact that - and to the extent that - the individuals, groups, and communities that provide the data for social research are deficient in power relative to the other participants in the research process."* He goes on: "Social scientists from the more affluent and powerful industrialized nations often go to developing countries to carry out their research; very rarely, however, do African, Asian, or Latin American social scientists come to study conditions in the more industrialized parts of the world. Similarly, within the United States,

* "The Rights of the Subject in Social Research", American Psychologist, Nov., 1972, p. 989.

social research often has been carried out by members of the white middle class, collecting their data in black, Puerto Rican, Indian or poor white communities; very rarely has the pattern been reversed. Thus, within the context of the international system or the national system, we see ... that the subjects for social research tend to be drawn from the communities in disadvantaged and relatively powerless positions. ... They have ... less freedom to refuse participation in research and less leverage to protect themselves against procedures that they may find objectionable. Furthermore, the subjects' power deficiency reduces the likelihood that the products of the research will accrue to their benefit. Their own groups typically have no voice in determining the questions to which the research is to be addressed, in terms of their definition of what is problematic, nor do they have the resources to make use of the research findings."

It requires no great feat of imagination to substitute "the Canadian north" for "developing countries" and "Inuit, Indians and métis" for the U.S. minority groups Kelman mentions. If we make this substitution, the warning is clear. We should not, in my view, draw back from developing higher education in the north through satellite communication. But we should make sure that we design the system, and the further research that will be needed for designing it, with Kelman's warnings in the very forefront of our minds.

The second setting in which, I suggest, satellite communication may develop relatively soon is in the linking of two very remote universities. My colleague, Dr. Donald George, will describe later in the programme the

curriculum-sharing programme he embarked on, through Hermes, with Stanford University in Palo Alto, California. It permitted, as you will hear, students at Carleton to participate in classes at Stanford (and vice-versa) through a two-way television and voice channel covering 2500 miles. But Carleton also has exchange agreements with Zdanov University in Leningrad and the University of Ife in Nigeria and if we think of what might occur if the same satellite linkage we had with Stanford joined Carleton with these two universities, the rather special political possibility I referred to at the outset reveals itself.

I suspect that a type of interactive communication would occur which would be remarkably informative and which could not be achieved in any other way. Let me list a few of the features of such a shared experience which appear to be unique.

1. Each of the professors and each group of students would be at home, in familiar surroundings. At conferences, one national group or both has been placed in an atypical environment. Moreover, conferences which link both professors and students in classroom proportions are rare.
2. The contact between the two groups would stretch over a period of months, permitting persons to be distinguished and making stereotyping much less likely.
3. Inevitably, if a seminar format was used, a member of one group would offend a member of the other. The reaction, we may guess, would be quite different from, and probably much less constrained

than, the response which would be made to such an incident in the more public and formal settings of an international conference, or even a short-term international seminar.

I could go on speculating endlessly - but the point is that I would be speculating, for I am reasonably sure that I could not predict in advance the mode of interaction which eventually would be established. There is at least a possibility, however, that experiments with linkages between university classrooms could in time be followed by much more politically important linkages using the same format.

I notice that tomorrow morning there will be a session entitled "SaskQuébec or the Demistified Téléconference". I am fascinated that "demistified" is spelled "m-i-s-t". Perhaps we will simply find that the fog that surrounds telecommunication is being dispelled, and not the mystery. Personally, I suspect that mystery will always attend communication and that changes in the media of communications will have quite unforeseen results. Like Anne Hébert, therefore, I urge that we approach this Symposium and Hermes itself with a hope of grasping at the same time that which is precise and that which is mysterious.